

CLAIMS

1. (Currently Amended) A sensing system comprising:
a cantilever disposed with a medium which is movable relative to the cantilever; and
a device associated with ~~one of the cantilever and the medium which is responsive to~~
~~changed in electrical field between the medium and the cantilever caused by a~~
~~distance between the medium and the cantilever changing;~~
wherein ~~the medium is supported on a substrate in which the device having a source,~~
~~drain and channel is formed, and wherein the medium is configured so that a~~
~~superficial data indicative topographical feature is located in operative proximity~~
~~to the channel of the device, a distal end of the cantilever, the device having a~~
~~source, a drain and a channel therebetween;~~
an electrically non-conductive probe disposed upon the either the source or the drain
and separate from the channel;
the medium having a non-conductive media disposed upon a conductive substrate,
the non-conductive media having a surface in contact with the probe, the surface
providing data indicative topographical features to vary the proximity distance
between the substrate and the channel;
a sensor circuit structured and arranged to develop a bias voltage between the
source and drain and substrate;
wherein varying proximity between the substrate and the channel effectively gates the
device and modulates current flow from the source to the drain through the
channel as a read signal.
2. (Canceled)
3. (Previously Presented) A sensing system as set forth in claim 1, wherein the device is a
FET (Field Effect Transistor).
4. (Previously Presented) A sensing system as set forth in claim 1, wherein the device is an
inducted channel FET (Field Effect Transistor).
5. (Canceled)

6. (Currently Amended) A read mechanism used in a contact atomic resolution storage system, comprising:
- a cantilever disposed with an electrically non-conductive medium which is movable relative to the cantilever, the cantilever having ~~a~~ an electrically non-conductive probe which follows a an elevationally varying topography of the medium and provides a varying proximity distance between the cantilever and a substrate on which the medium is supported; and
 - a device formed in the cantilever which responds to a change in electric field induced by a change in distance between the cantilever and ~~a the~~ the substrate on which the medium is supported, wherein the medium is supported on a substrate in which the device having a source, drain and channel is formed, and wherein the medium is configured so that a superficial data indicative topographical feature is located in operative proximity to the channel of the device; the device having a source, drain and a channel, the probe extending from either the source or the drain and being separate from the channel; and wherein varying proximity between the substrate and the channel effectively gates the device and modulates current flow from the source to the drain through the channel as a read signal.
7. (Original) A read mechanism as set forth in claim 6, wherein the device is a FET (Field Effect Transistor).
8. (Original) A read mechanism as set forth in claim 6, wherein the device is an induced channel FET (Field Effect Transistor).
9. (Currently Amended) A read mechanism used in a contact atomic resolution storage system, comprising:
- a cantilever disposed with ~~a~~ an electrically non-conductive medium which is movable relative to the cantilever;
 - a device associated with the distal end of the cantilever, the device having a source, a drain and a channel;
 - the cantilever having ~~a~~ an electrically non-conductive probe extending from either the source or the drain the cantilever and in contact with a surface of ~~an~~ an electrically ~~conductive the~~ conductive medium to follow changes in a data indicative topography of the medium, the surface providing data indicative topographical features to vary the proximity distance between the substrate and the channel;
 - a circuit which establishes an electrical connection between the cantilever and substrate on which the media is supported, and generates an electric field in an air gap between the cantilever and the medium; and

wherein the device is responsive to changes in the electric field in the air gap due to varying distance between the channel and the substrate, a reduced distance providing a stronger field across the air gap to effectively gate the device.

~~a device associated with the cantilever which is responsive to changes in the electric field in the air gap, wherein the medium is supported on a substrate in which the device having a source, drain and channel is formed, and wherein the medium is configured so that a superficial data indicative topographical feature is located in operative proximity to the channel to the device.~~

10. (Original) A read mechanism as set forth in claim 9, wherein the device is a FET (Field Effect Transistor).
11. (Original) A read mechanism as set forth in claim 9, wherein the device is an induced channel FET (Field Effect Transistor).
12. (Currently Amended) A method of using a sensing device comprising:
moving a an electrically non-conductive probe supported on a cantilever relative to a non-conductive medium that has a data indicative elevationally varying topography followed by the probe, the medium being associated with a substrate producing an electric field; and
sensing the change in distance between the cantilever and the medium using a change in current flowing through a FET (Field Effect Transistor) formed in the cantilever, wherein the change in current is induced by a change in electric field between the substrate and the FET, the FET having a source, drain and channel therebetween, the probe extending from either the source or the drain; wherein the medium is supported on a substrate in which the FET having a source, drain and channel is formed, and wherein the medium is configured so that a superficial data indicative topographical feature varying the proximity distance between the substrate and the channel is located in operative proximity to the channel of the FET.
13. (Original) A method as set forth in 12, further comprising using the change in electric field to sense the presence of a bit of data which is written into the medium.
14. (Original) A method as set forth in 13, further comprising using the data bit sensing in a mass storage device
15. – 27 (Canceled)